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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,306	04/25/2006	Koji Igarashi	262980US8PCT	3906
22850 7590 05/26/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2613	
			NOTIFICATION DATE	DELIVERY MODE
			05/26/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/516,306	Applicant(s) IGARASHI ET AL.	
	Examiner Dzung D. Tran	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14-63 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 23-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-16, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masao et al. Japan publication no. 11-284261 in view of Islam et al. US 2003/0012495.

Regarding claim 14, Masao discloses in Figure 3, a waveform reshaping device having a soliton converter comprising an anomalous dispersion fiber (ADF) 21 in which a fiber length thereof is up to twice of that of a soliton frequency (see abstract).

Masao does not specifically disclose wherein a pulse compressor is included at an input side.

Islam discloses a pulse compressor connected to the soliton regeneration (paragraph 0030).

At the time of the invention was made, it would have been obvious to an artisan to include the pulse compressor taught by Igarashi in the apparatus of Masao. One of ordinary skill in the art would have been motivated to do that in order for breaking up

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the compressed soliton pulse adjacent an output end of the fiber to shape the spectrum of the compressed soliton pulse through higher order dispersion effects (paragraph 0030).

Regarding claim 15, Islam discloses wherein said pulse compressor utilizes an adiabatic compression (paragraphs 0054, 0059).

Regarding claim 16, Islam discloses wherein said pulse compressor includes a dispersion decreasing fiber in which the dispersion is decreasing in a longitudinal direction of the optical fiber (paragraphs 0062, 0120).

Regarding claim 19, Islam discloses wherein said pulse compressor includes an optical fiber in which nonlinearity is increasing in a longitudinal direction of the optical fiber (paragraphs 0112, 0113, 0120).

Regarding claim 22, Islam discloses wherein said pulse compressor includes a Raman amplifier (paragraph 0120).

3. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masao et al. Japan publication no. 11-284261 in view of Islam et al. US 2003/0012495 and further in view of Liu et al. US Patent 5,715,346.

Regarding claims 17 and 20, the combination of Masao and Islam discloses that given an input pulse with a defined area and profile, the initial fiber dispersion and nonlinearity properties are chosen to ensure that a higher order soliton is present at the input to the fiber. The length of the fiber is determined by the first optimal compression point of the order of soliton present at the input. The properties of the subsequent

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fiber(s) are chosen to obtain a higher order soliton from the area of the compressed soliton present at the output of the previous stage (paragraph 0088 of Islam).

Islam does not specifically disclose wherein said pulse compressor includes an SDPF in which the dispersion has a step like profile in a longitudinal direction of the optical fiber wherein the optical fiber in which nonlinearity has a step like profile increasing in a longitudinal direction of the optical fiber.

Liu discloses a SDPF in which the dispersion has a step like profile in a longitudinal direction of the optical fiber (abstract).

At the time of the invention was made, it would have been obvious to an artisan to include the SDPF in which the dispersion has a step like profile in a longitudinal direction of the optical fiber taught by Liu in the apparatus of Masao and Islam. One of ordinary skill in the art would have been motivated to do that in order to reduce the nonlinearity dispersion effect.

4. Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masao et al. Japan publication no. 11-284261 in view of Islam et al. US 2003/0012495 and further in view of Poustie et al. US Patent 5,796,891.

Regarding claims 18 and 21, the combination of Masao and Islam discloses that given an input pulse with a defined area and profile, the initial fiber dispersion and nonlinearity properties are chosen to ensure that a higher order soliton is present at the input to the fiber. The length of the fiber is determined by the first optimal compression point of the order of soliton present at the input. The properties of the subsequent

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fiber(s) are chosen to obtain a higher order soliton from the area of the compressed soliton present at the output of the previous stage (paragraph 0088 of Islam).

Islam does not specifically disclose wherein said pulse compressor includes a CDPF in which the dispersion has a comb like profile in a longitudinal direction of the optical fiber, wherein the optical fiber in which nonlinearity has a comb like profile increasing in a longitudinal direction of the optical fiber

Poustie discloses in Figure 14, col.9, lines 32-52, a CDPF in which the dispersion has a comb like profile in a longitudinal direction of the optical fiber.

At the time of the invention was made, it would have been obvious to an artisan to include the CDPF in which the dispersion has a comb like profile in a longitudinal direction of the optical fiber taught by Poustie in the apparatus of Masao and Islam. One of ordinary skill in the art would have been motivated to do that in order to reduce the nonlinearity dispersion effect.

Response to Arguments

5. Applicant's arguments with respect to claims 14-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth, can be reached on (571) 272-3078. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran

05/22/2010

/Dzung D Tran/

Primary Examiner, Art Unit 2613

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